

Applicant: **Marcoccia, et al.**

Attorney Ref.: 2065.001 A

**In the Claims:**

Please introduce the following new claims:

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21. (NEW) A filtrate addition system for introducing filtrate to the blow dilution zone of a continuous digester, comprising:

(a) a header/nozzle assembly located in the blow dilution zone, comprising:

(i) a plurality of nozzles for introducing filtrate into the blow dilution zone; and

(ii) means for controlling the flow of filtrate introduced through the plurality of nozzles.

A 22. (NEW) The filtrate addition system as recited in claim 21, wherein the continuous digester comprises a shell, an outlet, and a converging transition from the shell to the outlet, wherein the plurality of nozzles are located in the converging transition.

23. (NEW) The filtrate addition system as recited in claim 22, wherein the plurality of nozzles located in the converging transition are located closer to the shell than to the outlet.

24. (NEW) The filtrate addition system as recited in claim 22, wherein the continuous digester comprises a shell having an longitudinal axis, and wherein the plurality of nozzles are oriented in a direction non-parallel to the longitudinal axis of the shell.

25. (NEW) The filtrate addition system as recited in claim 21, wherein the continuous digester comprises a cylindrical vessel having an internal surface, and wherein the converging transition comprises a transition from a vertical internal surface to a

horizontal internal surface, and wherein the plurality of nozzles are located in the converging transition.

26. (NEW) The filtrate addition system as recited in claim 25, wherein the plurality of nozzles are located nearer to the vertical internal surface than to the horizontal internal surface.

27. (NEW) The filtrate addition system as recited in claim 21, wherein the means for controlling the flow of filtrate comprises at least one flow control device.

28. (NEW) The filtrate addition system as recited in claim 27, wherein the means of controlling the flow of filtrate further comprises at least one flow measurement device.

29. (NEW) The filtrate addition system as recited in claim 22, wherein the header/nozzle assembly is located below the converging transition.

30. (NEW) A method of treating cellulosic fibrous material in a digester, the digester having an interior, an inlet for introducing cellulosic fibrous material, and an outlet for discharging treated cellulosic fibrous material, the method comprising:

causing the comminuted cellulosic fibrous material to flow in the digester interior in a substantially vertical flow path;

causing the comminuted cellulosic fibrous material to flow in a non-vertical flow path toward the outlet by providing a converging transition to the outlet; and

introducing filtrate to the converging transition to produce at least one of higher blow line consistency, increased digester DF capacity, improved heat recovery efficiency, improved washing efficiency, improved chip column movement, and reduced digester circumferential temperature gradients.

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31. (NEW) The method as recited in claim 30, wherein introducing filtrate comprises introducing filtrate via a plurality of evenly-spaced nozzles located in the converging transition.

32. (NEW) The method as recited in claim 31, wherein introducing filtrate further comprises controlling the flow of filtrate to the plurality of evenly-spaced nozzles.

33. (NEW) The method as recited in claim 30, wherein introducing filtrate comprises introducing filtrate nearer to the vertical flow path than to the outlet.

34. (NEW) The method as recited in claim 33, wherein introducing filtrate further comprises introducing filtrate via a plurality of evenly-spaced nozzles located in the converging transition.

35. (NEW) The method as recited in claim 33, wherein introducing filtrate further comprises introducing filtrate to the vertical flow path of the fibrous cellulosic material.

36. (NEW) The filtrate addition system as recited in claim 22, wherein the plurality of nozzles are located in zones of localized velocity gradients in the converging transition.